2020-2021 Bighorn Sheep Hunting Seasons & Quota Ranges
Justifications

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BIGHORN SHEEP

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION

Species: Sheep
Region: 3
Hunting District: 301 and 302
Year: 2020-2021

1. **Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.).**
   The proposed season for 2020-2021 is to remove ewe licenses in the Spanish Peaks (301-30) and Taylor-Hilgards (302-30) from the regulations, closing adult ewe harvest in both districts. There are currently no proposed changes to the either-sex licenses.

   The HD 302 ewe license was introduced in 2012 following several years of the highest population counts ever observed, and the HD 301 ewe license was introduced in 2016 for the same reasons. The purpose of these ewe licenses was to maintain the populations around their objective for the winter range habitat. The populations have regulated due to this ewe harvest, transplants, years of low lamb production, and severe winters resulting in lamb loss. These licenses are no longer needed to regulate this population.

2. **What is the objective of this proposed change? This could be a specific harvest amount or resulting population level or number of game damage complaints, etc.**
   The objective of this proposed change is to return sheep management to restrictive regulations under the Bighorn Sheep Conservation Strategy, and close ewe hunting until the time when the population again meets or exceeds standard or liberal management criteria.

3. **How will the success of this proposal be measured? This could be annual game or harvest surveys, game damage complaints, etc.**
   The bighorn herds will continue to be surveyed annually for total counts and classifications. Currently, both districts are meeting population objectives but both districts have seen several years of lower-than-average recruitment. When/if winter population counts grow above objective again with above-average recruitment, the ewe licenses may be reintroduced.

4. **What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**
   HD 301
   The population objective for this unit is 150 (range 120-180) as per the 2010 Bighorn Sheep Conservation Strategy. This objective was tested and proven during the severe winter of 2010-2011. A record-high count of 212 spring 2010 was reduced substantially through direct mortality the following winter, and overall counts declined to 140 by spring 2011 (Figure 1; Table 1). Following this severe winter, lamb recruitment was a near-record low of 8:100 spring 2012. The spring 2013 count showed recovery in counts (154 counted sheep) and in lamb:ewe ratios (38 lambs:100 ewes). As the population continued to grow, MFWP proposed the addition of ewe licenses in the 2016 hunting season with the stated objective to regulate the herd counts around the population objective (150) and to prevent over-use of winter range. Harvest rates on ewe licenses were high, about 80-90% of hunters were successful each year resulting in approximately 9, 9, and 4 ewes harvested in each 2016, 2017, and 2018. Meanwhile, lamb:ewe ratios decreased: only 23, 14, and 11 lambs per 100 ewes were observed in 2017, 2018, and 2019. Long-term average lamb recruitment for this herd has been 36 lambs per 100 ewes (95% CI = 28, 43).

   Successive years of low lamb recruitment coupled with the moderate ewe harvest could explain a population decline, but it is likely the true population has not dropped as sharply as counts suggest. Some of the reduction in counts could be due to inherent variability in survey conditions. The sharp drop observed in 2018 did not correspond with a notable mortality event, as was observed in the severe winter

of 2010-2011 when 19 dead bighorn sheep were recovered. By comparison, 3 mortalities were recovered 2017-2019 and 2 in 2018-2019.

Recent counts may be underestimating the true population, but given the uncertainty to the true population size, and likely intrinsic decline in population due to three years of below-average lamb recruitment, MFWP proposed a conservative management strategy, to reduce the number of ewe licenses available to 1 for the 2019 hunting season and now proposes to remove the ewe license entirely for the 2020-2021 biennium.

HD 302

The population objective according to the 2010 Bighorn Sheep Conservation Strategy is from 100-120 sheep for the Slide Inn/Quake Lake Winter range. Transplants to Moose/Sun Creeks (1990s) and Wolf Creek (2015-2018) have expanded the available winter range somewhat, and a realistic objective today is likely closer to 150-175 bighorn sheep for all three ranges. During 2018-2019, bighorn sheep were more difficult to count than previously; without baiting for capture concentrating them in visible areas, sheep were dispersed across the landscape and through timber. By March 2019, heavy snows had clearly impacted the lambs, and several starvation and other losses were documented.

During 4 of the last 5 years, the HD 302 herd has seen below-average lamb recruitment. Lamb per 100 ewe ratios have averaged 39 over the long term but averaged just 29 during the last 5 years. Between low lamb recruitment, ewe hunting, and transplants to expand the winter range, the population is within objective and the MFWP proposes to return management to a conservative strategy with no ewe licenses for the next biennium.

5. **Provide information related to any weather/habitat factors, public or private land use or resident and nonresident hunting opportunity that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, and temperature / precipitation information).**
Low spring lamb counts have been common for both HD 301 and HD 302 over the last several years. Lambs are counted through winter (December) and into spring (April or May), when they are approximately 6 to 11 months old. MFWP does not count the lambs until they come down from high-elevation summer range, so what we see is the product of pregnancy rates and neonatal survival. Significant early-season lamb mortality could occur on summer range and MFWP would not be able to detect it without an expensive and dedicated study effort. Based on adult ewe samples, both herds have shown exposure to *Mycoplasma ovipneumoniae* and other pathogens, and lamb pneumonia could be occurring. Adult ewe body condition could influence the survival of lambs through the ability of the dam to produce sufficient nutritious milk, but in the Taylor-Hilgard, ewes have been in excellent physical condition at every capture effort suggesting that body condition may not be a major concern for this herd. Predation on lambs could be a factor to an unknown degree, as both herds overlap with the full suite of Rocky Mountain predators: golden eagles, mountain lions, black bears, grizzly bears, and wolves.

6. **Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).**
This proposal was vetted through hunter harvest reports and through dedicated communications to more than 200 sportsmen and women, agency personnel, NGOs, and landowners. Comments received back included appreciation for conservative management of bighorn sheep herds. No negative comments were received.

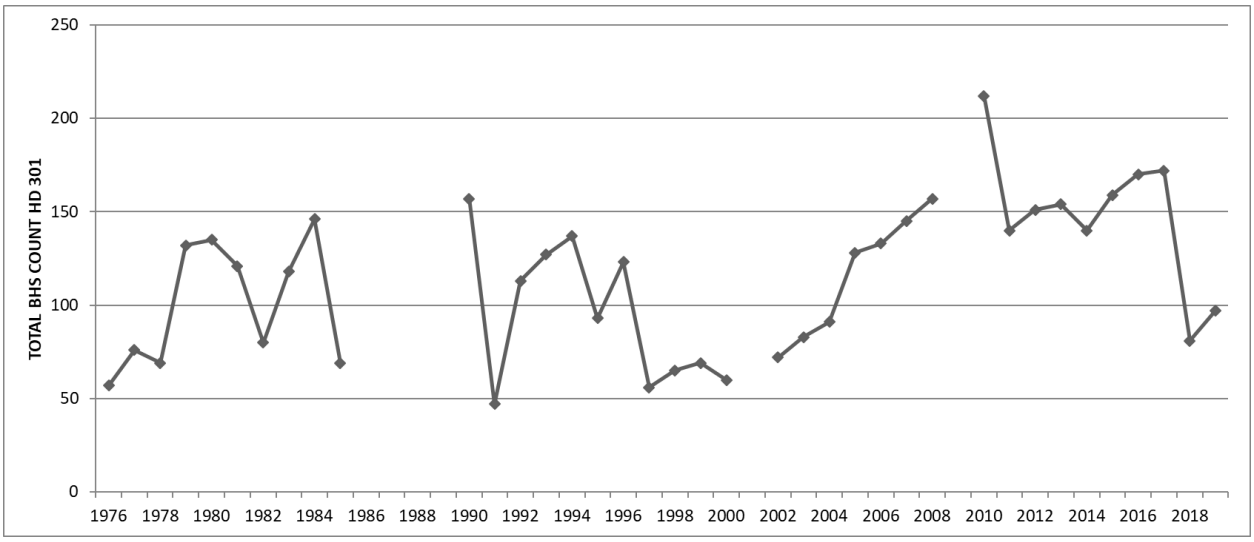

Figure 1: Bighorn sheep counts in HD 301, Spanish Peaks bighorn sheep winter range

Table 1: HD 301 bighorn sheep counted and classified 2006-2019

YEAR	TOTAL	EWES	LAMBS	RAMS	¼	½	¾	full	lamb/100ewe	ram/100ewe
2006	133	93	28	12	2	3	6	1	30	13
2007	145	80	33	32	5	10	3	14	41	41
2008	157	97	29	31	2	4	9	16	30	32
2009										
2010	212	113	67	32	4	10	8	10	59	28
2011	140	66	16	39	7	8	12	12	24	59
2012	151	111	9	26	7	9	5	4	8	23
2013	154	74	28	30	2	6	1	6	38	41
2014	140	83	32	23	5	6	8	4	39	28
2015	159	115	29	15	9	4	1	0	25	13
2016	170	60	22	31	2	11	11	8	37	53
2017	172	84	19	47	11	7	22	5	23	56
2018	81	51	7	23	3	5	9	6	14	45
2019	97	66	7	23	2	3	9	9	11	35

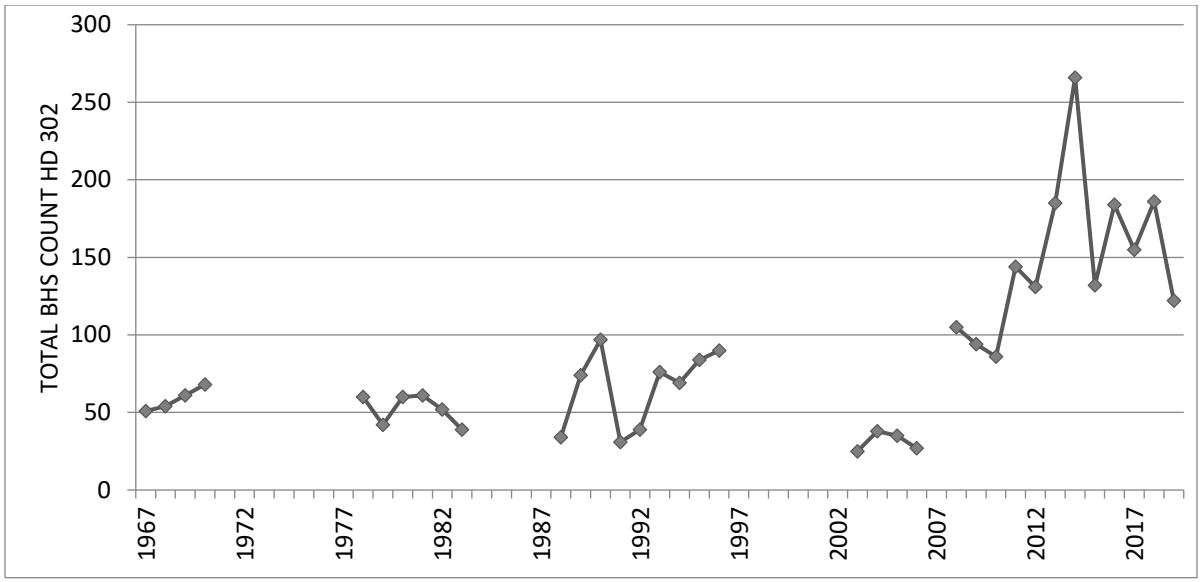

Figure 2: Bighorn sheep counts in HD 302, Taylor-Hilgard bighorn sheep winter range

Table 2: HD 302 bighorn sheep counted and classified 2003-2019

Year	Total	Class.	Rams	Ewes	Lambs	La/100ewes	Rams/100ewes
2019	122	92	27	57	8	14	47
2018	185	121	32	60	29	48	53
2017	155	155	33	93	29	31	35
2016	190	189	45	119	25	21	38
2015	132	132	26	82	24	30	32
2014	266	266	42	146	78	53	29
2013	185	179	26	88	65	74	30
2012	131	92	17	51	11	22	33
2011	144	109	38	54	15	28	70
2010	86	40	15	20	5	25	75
2009	94	94	16	67	11	16	24
2008	105	105	34	49	22	45	69
2007				No Survey			
2006	27	27	13	8	6	75	162
2005	35	35	1	34	0	0	3
2004	38	38	6	25	7	28	24
2003	25	25	12	12	1	8	100

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION

Species: Bighorn Sheep
Region: 3
Hunting District: 380
Year: 2020-2021

1. **Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.).**

   The proposal is to reopen bighorn sheep HD 380 for 1-any ram license. The district has been closed for sheep hunting since 2008 following an all-aged die-off in the HD.

2. **What is the objective of this proposed change? This could be a specific harvest amount or resulting population level or number of game damage complaints, etc.**

   The objective of the proposed change is to allow a minimal amount of hunting opportunity (1 license) for bighorn sheep rams in a HD that has failed to recover from an all-aged die-off that occurred in 2007/08. The bighorn sheep population in the Elkhorns has failed to recover in the 12 years since the all-aged die-off occurred. The thought process is to allow a hunter the opportunity to harvest a ram in the HD rather than just letting them die of old age. The harvest of one ram from the population on an annual basis should not have a negative impact on the population.

3. **How will the success of this proposal be measured? This could be annual game or harvest surveys, game damage complaints, etc.**

   Currently there is no dedicated bighorn sheep aerial survey in HD 380 (Elkhorns). However, at least a portion of if not the entirety of the main areas of bighorn sheep habitat in HD 380 are covered during the annual HD 380 post-season and spring mule deer trend surveys and during the annual HD 380 aerial elk survey. Any big horn sheep observations are recorded during those surveys. Usually less than 10 sheep are observed during those surveys. Harvest success will be monitored via the Department's annual telephone harvest survey and/or mandatory harvest check.

4. **What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**

   As mentioned, there is currently no dedicated bighorn sheep aerial survey in HD 380. However, based on the number of sheep observed during annual mule deer and/or elk surveys and from observations made by the general public (hunters), landowners and USFS personnel in the Elkhorns, it is estimated that the current bighorn sheep population in HD 350 is between 30-50 bighorn sheep. That number is believed to have remained fairly static for a number of years now. Lamb recruitment is believed to have remained poor ever since the all-aged die-off in 2007/08.

   The population objective for HD 380 (Montana Big Horn Sheep Conservation Strategy) prior to the die-off was 250 sheep. Following the die-off that objective was revised to what is believed to be a minimum viable population of 125 sheep. That number of sheep is believed to be sufficient enough to be self-sustaining. According to the BHS Conservation Strategy, reopening of HD 380 for hunting of bighorn sheep was to be recommended when three of the following four criteria were met for a minimum of three successive years.

   - 1) The population is at least 75 observable sheep.
   - 2) There are at least 30 rams: 100 ewes.
   - 3) More than 30% of the rams are at least ¾ curl.

- 4) There are at least 30 lambs:100 ewes.

For sure criteria 1 & 4 are not being met, while criteria 2 & 3 are possibly being met, but the sample sizes from the number of sheep observed during annual mule deer and/or elk surveys are so small, it is hard to say definitively whether they are being met or not. Given the lack of recovery after 12 years, it is now highly questionable whether this sheep population will ever recover enough to meet the actual formal criteria to reopen the HD for hunting. Domestic sheep grazing is occurring and will likely continue to occur for the foreseeable future well within the current 14.3-mile recommended buffer between bighorn sheep and domestics, so augmenting the current HD 380 sheep population with more big horn sheep is likely not a viable option.

5. **Provide information related to any weather/habitat factors, public or private land use or resident and nonresident hunting opportunity that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, and temperature / precipitation information).**

   The proposed regulation change would increase the hunting opportunity for both residents and nonresidents in the HD to a very limited degree (only one license would be offered). Weather this past winter started out generally mild but then turned severe, so bighorn sheep survival and in particular lamb survival was likely negatively impacted at least in some areas (no lambs were observed during this year's spring mule deer survey). This spring/summer/early fall we had good moisture and cooler temps for the most part so forage conditions/quality on native range should have been good. The vast majority of the bighorn sheep habitat in HD 380 is either USFS or BLM land, so potential public access for sheep hunting is good.

6. **Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).**

   Members of Helena Hunters & Anglers and the Townsend Rod & Gun Club were made aware of the proposal and asked for their comments on the proposal – no comments were received on the proposal. Members of the Elkhorns Working Group and the former Elkhorns Restoration Committee (now Big Belts/Elkhorns/Divide Restoration Committee) were also both made aware of the proposal and again no comments were received on it. A couple members of the Wild Sheep Foundation were contacted and made aware of the proposal, and they were okay with it. Area game wardens contacted about the recommendation were either supportive or at least apparently okay with the proposed recommendation.

Submitted by: Adam Grove, Wildlife Biologist – Townsend

Date: 10/14/19

Approved: _____
Regional Supervisor / Date

Disapproved / Modified by: _____
Name / Date

Reason for Modification:

2020-2021 Bighorn Sheep Hunting Seasons & Quota Ranges Justifications

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION

Species: Bighorn Sheep

Region: 6
Hunting District: 622

Year: 2020-2021

1. **Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.).**

This proposal aims to extend the eastern boundary of the bighorn sheep HD 622 to run along the current border for the Deer/Elk HD 631 (Fig 1). This will simplify regulations by using a known boundary already and will account for some recent distribution that has occurred east of the current bighorn sheep hunting boundary. Additionally, the restriction of where the adult ewe license is valid (i.e., Valid west of Timber Creek and east of Reynolds Hill (Fourchette Bay) Rd.) will be removed and the adult ewe license holder will be allowed to harvest an ewe anywhere in the new proposed hunting district.

Legal Description for proposed Bighorn Sheep HD 622 (Figure 1) and proposed quotas and quota ranges:

Those portions of Valley and Phillips Counties lying within the following-described boundary: Beginning at the Bone Trail Boat Ramp on Fort Peck Reservoir then northeasterly along said reservoir to CMR Road 516, then northwest along said road to Murray Road, then northerly along said road to Willow Creek Road, then northeasterly along said road to Stonehouse Road, then northwesterly along said road to Ridge Road, then north up said road to the Triple Crossing Road, then west on said road to the Larb Creek-Content Road, then northwesterly along said road to Content Road, then southwesterly along said road to Sun Prairie Road, then southerly along said road to the First Creek Hall Road, then northwesterly along said road to First Creek Hall, then westerly along said road to Midale Road, then southerly along said road to CMR Boundary Road 212, then easterly along said road to CMR Road 201, then southeasterly along said road to CMR Road 219, then southwesterly along said road to Fort Peck Reservoir, then easterly along said reservoir to the Bone Trail Boat Ramp, the point of beginning.

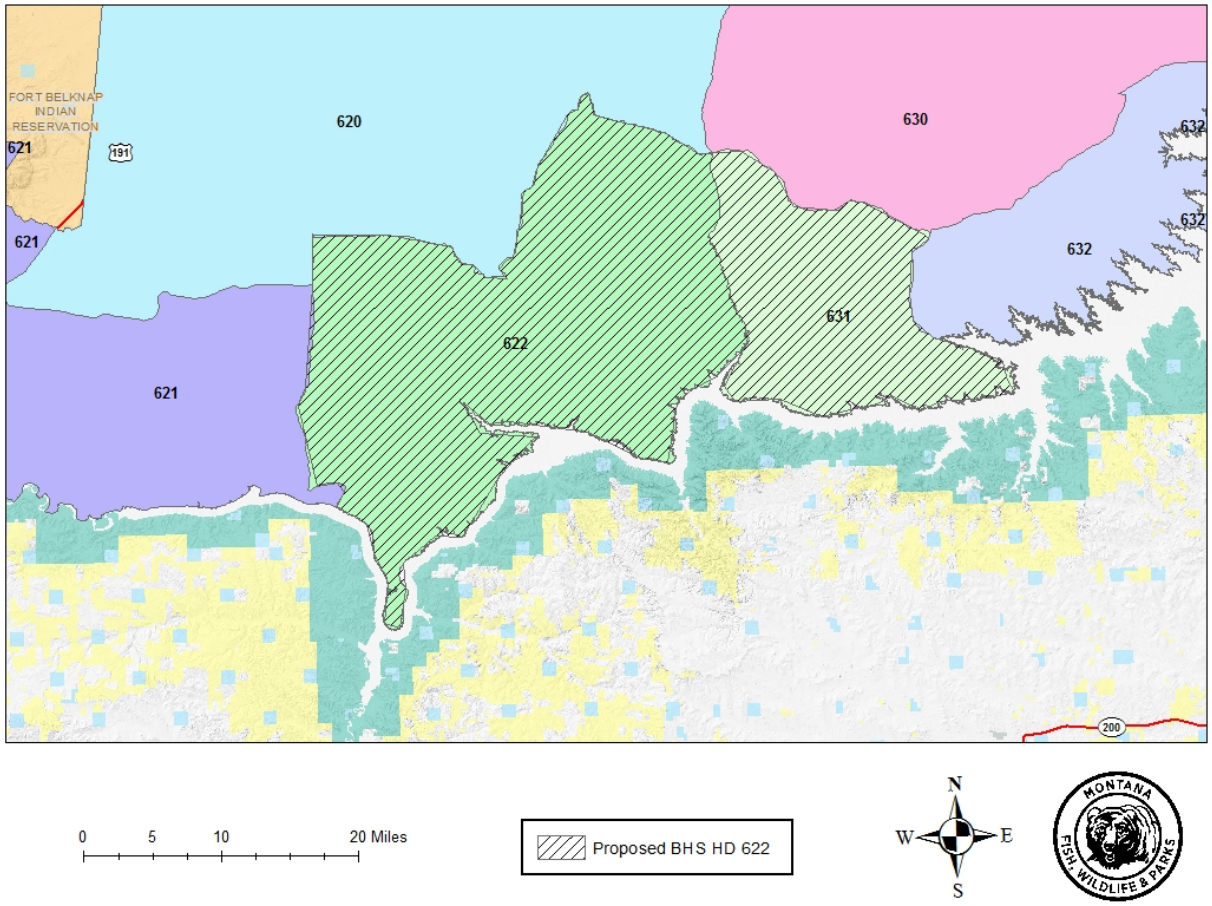

Figure 1. Current deer/elk hunting districts relative to the proposed bighorn sheep HD 622.

2. What is the objective of this proposed change? This could be a specific harvest amount or resulting population level or number of game damage complaints, etc.

The overall objective is simplification of the HD boundary and license language to expand the area for where the licenses are valid to account for more opportunity as distribution of bighorn sheep moves.

3. How will the success of this proposal be measured? This could be annual game or harvest surveys, game damage complaints, etc.

Success of this proposal will be measured by the annual bighorn sheep aerial survey flight to gather and compare trend data for the sheep population as a whole as well as sub-populations of sheep

based on their location in the HD. Additionally, success will be monitored through the annual hunter harvest surveys and through the overall simplification of regulations by removing restrictions and expanding the HD to align with other species HDs.

4. **What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**

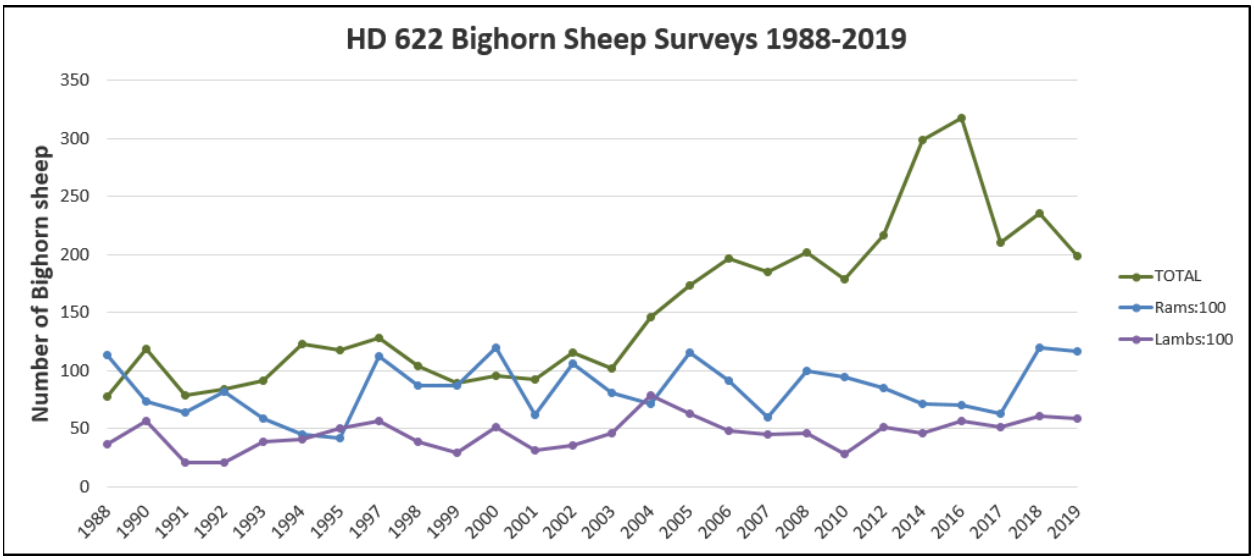

Figure 2. Region 6 Bighorn Sheep Survey data in HD 622, 1988-2019.

Total bighorn sheep observed in HD 622 during the 2019 survey was 26% above the long-term average and is currently right at the upper objective as outlined in the Montana Bighorn Sheep Conservation Strategy (2010), lamb ratios were 59 lambs: 100 ewes (37% above LTA) and the ram ratio of 117 rams: 100 ewes was 39% above LTA.

2017

Area	Ewes	Lambs	< ¼	¼ - ½	½ - ¾	¾ - 1	Total
M/B Buttes	0	0	0	0	0	0	0
*Larb Hills**	27	20	3	2	0	0	52
*Iron Stake**	53	22	11	12	9	17	101
E. Timber Cr.	18	9	0	2	3	3	35
Total	**98**	**51**	**14**	**16**	**12**	**20**	**211**

2018

Area	Ewes	Lambs	< ¼	¼ - ½	½ - ¾	¾ - 1	Total
M/B Buttes	0	0	0	0	0	0	0
*Larb Hills**	32	22	5	8	8	23	98
*Iron Stake**	31	18	6	7	17	15	94
E. Timber Cr.	21	11	4	0	1	7	44
Total	**84**	**51**	**15**	**15**	**26**	**45**	236

**Split at Blue Ridge*

2019

Area	Ewes	Lambs	< ¼	¼ - ½	½ - ¾	¾ - 1	Total
M/B Buttes	0	0	0	0	0	0	0
*Larb Hills**	22	15	5	12	9	12	75
*Iron Stake**	29	14	2	6	16	8	75 (81)**
E. Timber Cr.	19	12	5	1	1	5	43
Total	**70**	**41**	**12**	**19**	**26**	**25**	193(199)

**Split at Blue Ridge*

***An additional 6 unclassified ewes/lambs*

Figure 3. Region 6 Bighorn Sheep Survey data in HD 622 by distribution, 1988-2019.

5. **Provide information related to any weather/habitat factors, public or private land use or resident and nonresident hunting opportunity that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, and temperature / precipitation information).**

Overall the weather has been favorable, and the drought of 2017 followed by the hard winter did not appear to have an impact on recruitment or survival of bighorn sheep in the area. Public hunting access and opportunity continues to be very good and expanding the district boundary will add additional opportunity to some ram groups that make movements outside the current boundary. Also, removing the adult ewe license geographic restriction will simplify the regulations and reduce confusion for hunters while afield and will increase opportunity as well.

6. Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).

Multiple contacts have been made with the public both during public meetings (Breaks Elk Working Group in 2019) as well as during general conversations with sheep license holders as well as other hunters and most seemed to be in favor for the proposed changes. FWP continues to work cooperatively with the Charles M. Russell staff and they were emailed to discuss these proposed changes and they did not have any objections to the proposed changes and wanted to communicate that they want to continue supporting sheep populations at or near biological carrying capacity in all available sheep habitat on the CMR with proper management practices and preventions towards issues such as diseases. CMR staff do not want to inhibit sheep from colonizing currently unused sheep habitat and if the sheep can fill these previously unoccupied areas while also supporting some hunter harvest then that works out well.

Submitted by: Brett Dorak, Malta Area Wildlife Biologist

Date: 10/22/2019

Approved: _____
Regional Supervisor / Date

Disapproved / Modified by: _____

Name / Date

Reason for Modification:

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION

Species: Mountain Goat
Region: 4
Hunting District: 460

2020-2021 Bighorn Sheep Hunting Seasons & Quota Ranges Justifications

Year: 2020

1. **Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.). REMEMBER THIS STEP IS TO BE ACCOMPLISHED BY THE INITIAL ENTRY INTO THE DATABASE—SO FOLKS CAN START THIS NARRATIVE WITH #2 BELOW.**

2. **What is the objective of this proposed change? This could be a specific harvest amount or resulting population level or number of game damage complaints, etc.**

It is proposed to close the Hunting District (HD) 460 mountain goat season for 2020, to remain closed until populations rebound to huntable levels. The objective of this proposed change is to reduce the potential for further population declines due to harvest and promote population growth. The mountain goat population in this HD east of Great Falls extends throughout the Highwood Mountains, an isolated mountain range of USFS lands surrounded by private land mountain foothill habitats. This goat population expanded to the Highwoods from neighboring Square and Round Buttes (HD 447) in the late 1980's and early 1990's. Movement from Square and Round Buttes to and from the Highwoods occurs, but not nearly like in the late 1990's and early 2000's when goat numbers were at all-time highs on Square Butte. The population objective for mountain goats in the Highwood Mountains is to maintain 70 observed goats (± 20%) with good distribution throughout the mountain range.

3. **How will the success of this proposal be measured? This could be annual game or harvest surveys, game damage complaints, etc.**

The success of this proposal will primarily be measured by observed increases in overall numbers of mountain goats (to include improved production/recruitment) during survey efforts. Another measure of success also includes expanded or improved mountain goat distribution within this area with respect to historical observations. The mountain goat population in the District has been declining since 2010 due to several reasons including but not limited to poor kid production and recruitment, hunter harvest of adult nannies, unaccounted for harvest from supertag and auctions license(s), conifer encroachment in safety corridors and ridge tops, predation (especially via exploding lion population), and late winter early spring large scale snow events.

Table 1. Mountain goat survey trends on Square & Round Buttes, Highwoods, 1990-Present.

	Square Butte HD 447			Round Butte HD 447			Highwoods HD 460		
Year	**Adults**	**Kids**	**Total**	**Adults**	**Kids**	**Total**	**Adults**	**Kids**	**Total**
1990	36	16	52	No	survey		No	survey	
1991	No	survey		No	survey		No	survey	
1992	-	-	74	-	-	5	No	survey	
1993	56	23	79	4	1	5	No	survey	
1994	51	18	69	9	3	12	9	5	14
1995	52	15	67	9	6	15	15	6	21
1996	56	17	73	6	4	10	25	8	33
1997	35	21	56	9	6	15	30	12	42
1998	38	16	54	3	2	5	26	6	32
1999	36	23	59	10	7	17	28	17	45
2000	48	15	63	7	3	12	No	survey	
2001*	26	5	31	21	6	27	47	14	61
2002	30	11	41	21	10	31	44	13	57
2003a**	36	28	64	17	13	30	39	14	53
2003b	48	27	75	20	12	32	No	survey	
2004	46	21	67	26	10	36	39	10	49
2005	36	11	47	32	13	45	51	21	72
2006	24	8	32	24	15	39	31	12	43

2007	21	6	27	23	8	31	52	16	68
2008	19	7	26	23	12	35	45	17	62
2009	No	Survey		No	Survey		No	Survey	
2010	19	4	23	25	8	33	63	16	79
2011	No	Survey		No	Survey		No	Survey	
2012	22	8	30	25	7	32	44	6	50
2013	2	1	3	26	6	32	38	5	43
2014	24	5	29			30	21	4	26
2015	10	3	13			31(4/2015)	37	3	40
2016	14	4	18	26	8	34	13	4	17
2017	No	Survey				38	No	Survey	
2018	15	2	17	34	10	44	10	3	13
2019									

*March 2001, 77 goats counted on square butte during elk survey.
**April 2003, 64 goats counted on square butte and 27 goats counted on round butte during incidental survey by CL and GT.
***April 2006, 47 goats counted on square Butte and 40 goats counted on Round Butte (GT surveyor)

4. **What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**

Mountain goat HD 460 was created for the Highwoods goat population in 1998, with two licenses offered. The goat population in the Highwoods has remained relatively stable through the 2000's. From 1998 to 2001, two either sex licenses were issued annually. As the population expanded to 60 animals in 2001, license numbers increased to five annually from 2002-2005. During 2005, late summer/early fall surveys, 72 goats were observed in HD 460 indicating the continued growth and expansion of the Highwoods goat population. In 2006, licenses were again increased from 5 to 7 following goat population trends (Tables 1 and 2). In the late 2000's, goat numbers were slightly lower than highs of 2006-07, thus licenses were reduced from 7 to 4. Survey results from fall 2010 revealed an all-time high number of goats thus an increase in licenses to 6 from 2011 to 2013. During the 2013 season, two (2) additional billies were harvested from the HD, the Montana goat "supertag" and the mountain goat auction license. This additional harvest boosted the total harvest to 8 (6 billies, 2 nannies) during the 2013 season. Additional harvest through the auction and supertag is not consistent from year to year but can have an adverse effect on the population harvesting "extra" goats during one given year and cannot be accounted for when setting quotas. As goat numbers started to show declines in 2013, licenses were reduced to 4 for the 2014 season. During the 2014 and 2015 seasons, 8 total goats were harvested, half consisting of adult nannies. In 2016, licenses were reduced from 4 to 2 and further reduced in 2017 to 1 license as populations continued to decline. The past 14 years (2005-2018), 66 goats have been harvested in the Highwoods (42 Billies / 14 Nannies), a 21% nanny harvest. Historically, the number of licenses offered in goat HD's 447 and 460 was approximately 10% of the observed population, if and when, production and recruitment was good during the same period. This non-native herd had historically very good production and recruitment compared to native goat herds in Montana, which is typical of most non-native herds. That has not been the case the last 10 years (Tables 1 and 2).

Female goats typically do not breed until they are at least 3-4 years old and may not have a kid every year. Primary productive ages are 4-10 years of age with senescence occurring around 10 years of age. With the 21% female harvest, lack of kid production and recruitment, lower population levels, the number of licenses were reduced to follow population trends. Kid production and recruitment has also been poor in both HD's 460 and 447. Since 2010, surveys revealed less than 30 kids: 100 adults (Table 2). During 2015, late summer/early fall aerial survey efforts, along with ground (foot/horse) surveys and hunter contacts, total observed numbers revealed 40 goats (37 adults, 3 kids).This survey showed further decline in overall numbers and kid recruitment from the high of 79 goats observed in 2010 (Tables 2 and 3). Total observed number of goats during aerial surveys late summer/early fall 2016 revealed only 17 goats and 13 goats during 2018 surveys. Based on various research data, an approximate observability rate of 60% (aerial helicopter survey) may be a realistic number to be used to help gauge population size for this HD. Simply put,

a potential target minimum observation of 35-40 individual adult goats (non-kid/yearlings) could be recommended during survey efforts to consider reopening this HD. For perspective, using a 60% observability rate and considering a total of 10 adult goats were observed on the most recent survey (2018), this would place total adult goats in this HD at 16 goats, much below objective.

Research has shown that most native goat populations can only sustain greater than 3% harvest rates when herds are large (>100 animals). Unlike other ungulates, harvest appears to be largely additive to natural mortality (Hamel et al. 2006). Removing hunter harvest will also be very important in allowing the population to rebound and maintain stability. Therefore, suggest harvest rates for mountain goats are low albeit variable. Gonzalez-Voyer et al. (2000) suggested a herd of 100 could only sustain a harvest of 1 or 2 adult males per year. Cote and Fest-Bianchet, (2001) reported that native mountain goat populations may not sustain a yearly harvest greater than 2%, primarily because kid production is so low and age at first reproduction is late. They suggested that the best management strategy for native populations of goats is to combine a 2-3% annual harvest of a population with a strong encouragement to harvest adult males. Many Jurisdictions do not support hunting mountain goats with less 50 individuals in the population (Alaska, Alberta, British Columbia, Idaho, Oregon, and Washington) (Mountain Goat Management Team, BC, 2010). British Columbia does not hunt mountain goats with a population that is less than an estimated 50 adult goats (Mountain Goat Management Team, 2010). At a minimum this suggests harvest should be avoided on populations less than 50 individuals. Currently, HD 447 estimated population is considerably below 50 individuals.

Table 2. Number of goat licenses, harvest and survey trends HD's 447 and 460, 1971 - Present.

Year	HD 447 Count	Kids/100 Adults	HD 447 Licenses	Total Harvest	HD 460 Count	Kids/100 Adults	HD 460 Licenses	Total Harvest
1971	7^		0	0				
1975	9	50	0	0				
1976	15	36	2	2				
1977	17	70	2	2				
1978			2	2				
1979	20	54	3	3				
1980			3	3				
1981	21	50	3	3				
1982	34	48	3	3				
1983	41	64	3	3				
1984	35	46	4	4				
1985	46	64	4	4				
1986	54	42	9	8				
1987	73		5	5				
1988			10	9				
1989	61	61	15	14				
1990	52	44	15	14				
1991	62	NA	15	15				
1992	74	NA	15	15				
1993	79	41	15	13				
1994	69	35	15	14	14	56	0	
1995	67	29	15	10	21	40	0	
1996	73	30	15	11	33	32	0	
1997	56	60	15	15	42	40	0	
1998	54	42	10	9	32	23	2	2 M
1999	59	64	10	9	45	61	2	1 M
2000	75	33	12	10	No	Survey	2	2
2001	104	NA	15	12 (8M, 4F)	61	30	2	2 (0F)
2002	72	41	15	13 (8M, 5F)	57	30	5	4 (1F)
2003	107	57	15	13 (9M, 4F)	53	36	5	5 (1F)
2004*	103	43	15	14* (6M, 7F / 1M Rnd.)	49	25	5	4 (0F)
2005	92	35	12	11 (4M, 6F / 1M Rnd)	72	41	5	5 (1F)
2006	87	48	10	10 (5M, 4F / 1M Rnd)	43	39	7	7 (1F)
2007**	58	32	10	8** (5M, 3F)	68	31	7	6 (6M, 0F)

2008	61	45	4	4 (3M / 1M Rnd)	62	38	7	6 (5M, 1F)
2009	No	Survey	4	4 (4M)	No	Survey	7	7 (3M, 4F)
2010	56	27	4	4 (3M,1F)	79	25	4	4M
2011	No	Survey	2	2 (1M,1 F)	No	Survey	6	6 M
2012	62	32	2	2 M (1M Rnd)	50	14	6	6 (5 M, 1 F)
2013	35	27	2	2M	43	13	6	8 (6M, 2F)
2014	61	N/A	2	2 (1 M, 1F)	26	15	4	4 (2M, 2F)
2015	44	28	2	3 (1M / 1M, 1F Rnd)	40	7	4	4 (2M, 2F)
2016	52	30	2	3 (2M / 1F – Rnd)	17	31	2	2M
2017	No	Survey	2	1M	No	Survey	2	1M
2018	51	24	1	1M	13	30	1	1M
2019			1	1M			1	0

^ A total of 7 mountain goats (2 males and 5 females) were transplanted to Square Butte in 1971. Also 4 were released in 1943.
* In Jan. 2005, FWP trapped 5 (4 nannies, 1 billy) goats from Square Butte and moved to the Scapegoat Wilderness Area.
** In Jan. 2008, FWP trapped 10 (9 nannies, 1 billy) goats from Round Butte and moved to Ear Mountain.

5. Provide information related to any weather/habitat factors, public or private land use or resident and nonresident hunting opportunity that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, and temperature / precipitation information).

Since 2012, there has been at least three above normal winters (snow) coupled with numerous spring snow events. Winter 2017/18 was one of the worst on record in the Great Falls area for both snowfall and cold. Winter 2018/19 snow events in February 2019 received over 45" snow and average temperatures of 0.3 degrees F in Great Falls. Winter mortality could have been realized especially for kids and yearlings. Because the observed population is low, other factors such as habitat changes and predation can become more critical limiting factors. Wolves, mountain lions, golden eagles, black bears, bobcats and coyotes exist throughout the range and may contribute to mortality of adults and young. The USFS initiated a multiyear conifer encroachment reduction effort to improve habitat conditions on ridges in the interior of the Highwoods on USFS lands this past summer.

6. Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).

The proposal has been discussed with area wardens Trenton Farmer, Keith Knighton, Dave Holland, Kqyn Kuka and area USFS biologist David Kemp, all supporting the closure. Area sportsman groups Russell Country Sportsmen, Montana Sportsmen Alliance and Great Falls Chapter Safari Club International all have been approached with the closure, receiving support. There will be some concern with the public with the reduced opportunity until goats rebound.

Submitted by: Cory Loecker, Region 4 Wildlife Manager

Date: 10/5/2019

Approved: _____
Regional Supervisor / Date

Disapproved / Modified by: _____
Name / Date

Reason for Modification:

LITERATURE CITED

Cote, S.D., and M. Festa-Bianchet, 2001. Reproductive success in female mountain goats: the influence of age and social rank. Animal Behaviour 62:173-181.

Gonzalez-Voyer, A., Smith, K., Festa-Bianchet, M. 2000. Dynamics of Hunted and Unhunted

Mountain Goat Populations. Biennial Symposium of the Northern Wild Sheep and Goat Council 12:126

Hamel, S., S.D., Cote, K.G. Smith, and M. Festa-Bianchet. 2006. Population dynamics and harvest potential of mountain goat herds in Alberta. The Journal of Wildlife Management 70:1044-1053.

Mountain Goat Management Team. 2010. Management Plan for the Mountain Goat (Oreamnos americanus) in British Columbia. Prepared for the B.C. Ministry of Environment, Vicoria, B.C. 87pp.

MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION

Species: Mountain Goat
Region: 5
Hunting District: 521
Year: 2020

7. Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.).

Open new hunting district 521 with 4 either sex licenses

521-20: 4 Licenses
• Sep 15 – Nov 30 Either-sex

Establish quota range of 1 to 6 either sex licenses.

Non-native mountain goats have expanded both in numbers and distribution along the Boulder/Stillwater divide in recent years. This expansion has resulted in increased goat numbers in the Flood Creek/Two Sisters/Tumble Mountain areas of the western Beartooth Mountains. This area is currently not included in any mountain goat hunting district. The expansion of goats offers the opportunity to provide additional hunter opportunity by opening a new hunting district for goat harvest. The Flood Creek/Two Sisters/Tumble Mountain area also is the primary spring lambing/nursery area and summer range for the bighorn sheep that winter at low elevation south of Nye, MT. Recent research from Montana State University has suggested the potential for conflict between expanding mountain goat populations and native bighorn populations, including potential for forage competition, social conflict or disease transmission. Minimizing the rate of increase of mountain goats through hunter harvest will reduce the potential for these conflicts to develop.

8. Why is the proposed change necessary?

The proposal will bring increased goat hunter opportunity to Region 5. The proposal should also result in a lower rate of increase for non-native mountain goats that are expanding into critical spring lambing and summer range for native bighorns.

9. What is the objective of this proposed change? This could be a specific harvest amount or resulting population level or number of game damage complaints, etc.

The objective is to harvest a minimum of two mountain goats/year.

10. How will the success of this proposal be measured? This could be annual game or harvest surveys, game damage complaints, etc.

Harvest will be monitored through the statewide hunter questionnaire survey. Monitoring goat numbers will largely depend on hunter reports.

11. **What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**

The Flood Creek/Two Sisters/Tumble Mountain area is outside of the hunting districts typically surveyed in Regions 3 and 5. However, several dedicated bighorn hunters have supplied counts of goats in this area over the last couple of years. In 2018 these hunters counted a minimum of 33 goats. These same hunters tallied a minimum of 38 goats in 2019 and noted increasing numbers of goats on the northern end of the area. The objective would be to stabilize the goat herd at no more than 35 countable goats.

12. **How will this proposal influence this population status?**

The proposal would hopefully result in stabilizing the goat herd at no more than 35 countable goats.

13. Provide information related to any weather/habitat factors that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, and temperature / precipitation information).

1) Utilization transect information: None

2) Snow condition survey information:
The winters of 2017-18 and 2018-19 were severe. However, goat numbers remained stable or increased slightly.
3) Describe access problems related to change, etc.
Access will remain stable since the entire HD is located on USFS lands with good trail access.
4) Overwinter survival information (i.e. bad winter lost what % of population)
Despite severe winters in recent years goat numbers remained stable or increased slightly.

14. Provide information relative to impacts to resident hunters, nonresident hunters and public & private land use.

Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).

1) List specific sports groups or landowners:
The Rocky Mountain Goat Alliance has been contacted regarding the potential for a hunting season in this area.
2) Indicate if proposal was recommended by public - is it in response to a concern by sportspersons:
This proposal is largely the result of communications with bighorn hunters that spend time in Bighorn HD 500.

Submitted by: Shawn T. Stewart

Date: October 10, 2019

Approved: _____

Regional Supervisor / Date

Disapproved / Modified by: _____
Name / Date

Reason for Modification: